June 5, 1962

Dr. Toshihiko Okada
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Dear Dr. Okada:

Thank you for your very informative letter of June 1. I was very much interested and pleased to hear of your results and it certainly does seem to me as if the most promising hypothesis is that a plasmid other than F is responsible for the thymine$^+$ character; this plasmid can only be transmitted during conjugation mediated by HFR or by F. I should have to see the details of your transfer curves to judge whether I accept the conclusion that the plasmid enters only late or only in general at a rather slow rate as might be indicated from your F$^+$ by F$^-$ experiment. Part B of your letter certainly raises some perplexing questions, but I am sure they will be resolved with further investigation. Perhaps there are several different factors involved in the thymine$^-$ phenotype as your recombination experiment suggests. However, since the thymine$^-$ may be somewhat revertible this could interfere with the interpretation of a recombination experiment. A critical question would be the behavior of the thymine$^+$ reversions when they occur in an F$^+$ thy$^-$ strain. Is the thy$^+$ character of such a reversion transmitted contagiously in the same fashion as the original thy$^+$ character of the strain that had not been treated with aminopterin? It is, of course, quite conceivable that there is a chromosomal gene which is capable of reverting and giving the same thy$^+$ phenotype as is ordinarily conferred by the thy$^+$ plasmid.

I do not understand your question about the availability of "the chemical". Which chemical were you speaking of?

Cordially,

Yours sincerely,

Joshua Lederberg
Professor of Genetics